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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,073	11/28/2001	Weimin Li	MICRON.179A	4796

20995 7590 06/07/2004

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EXAMINER

SONG, MATTHEW J

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

09/997,073

LI ET AL

Examiner

Art Unit

Matthew J Song

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 27-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/19/2002.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-26, drawn to a method, classified in class 117, subclass 84.
- II. Claims 27-31, drawn to an apparatus, classified in class 118, subclass 715.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as one where a metal-organic compound is not introduced.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Michael Trenholm on 5/5/2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 27-31 are

Art Unit: 1765

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-5, 7-13, 15-26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3-17 of copending Application No. 10/313,088. Although the conflicting claims are not identical, they are not patentably distinct from each other because 10/313,088 claims a metal organic chemical vapor deposition a plurality of layers of a metallic composition on a substrate by alternating between: depositing a layer with a metal source gas and a reducing agent and depositing a layer with the same metal source gas using an oxidizing agent (claim 11). 10/313,088 also claims the metal composition is an alloy of platinum and rhodium (claim 1), the reducer is hydrogen or ammonia and the oxidizer is oxygen, ozone, nitrous oxide, hydrogen peroxide, steam or nitric oxide (claims 3-4).

Art Unit: 1765

10/313,088 does not claim the first reaction energy to thereby result in the metal being deposited on the substrate at a first surface mobility to thereby form nucleation sites for the metal-organic film on the substrate, a second reaction energy greater than the first reaction energy to thereby result in increased agglomeration of the metal component to increase the growth rate of the metal film and the re-introduction of the first reactant gas results in deposition of the metal component into interstitial spaces formed during the increased agglomeration of the metal component on the substrate during introduction of the second reactant gas to thereby improve surface morphology of the metal film. 10/313,088 claims alternating deposition between a reducing reactant and an oxidizing reactant, where the reducing agent reads on applicants' first reactant and the oxidizing agent reads on applicants' second reactant. Applicants teach the oxidizing agent has a high reaction energy and the applied oxidation chemistry results in rapid columnar growths and the high reaction may provide for an increased surface mobility, which results in the metal atoms agglomerating together into columns (page 9). Applicants also teach the first reactant vapor due to its lower reaction energy and lower surface mobility of depositing conductive elements results in a more uniform coverage, improved adhesion and improved morphology (page 10). Therefore, because 10/313,088 claims the same first and second reactants, as instantly claimed (instant claims 9-10), the reaction of the two reactants will inherently produce the same effects.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 1765

7. Claims 6 and 14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3-17 of copending Application No. 10/313,088 in view of Marsh (US 5,990,559).

10/313,088 teaches all of the limitations of claim 6, as discussed previously, except the metal organic compound.

In a method of chemical vapor deposition, Marsh teaches a platinum precursor and oxidizing gas are supplied to a reaction chamber to deposited platinum over a substrate. Marsh also teaches the platinum precursor is MeCpPtMe_3 , a metal organic precursor (col 3, ln 1-67). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify 10/313,088 with Marsh's metal organic precursor because selection of known material based on its suitability for its intended purpose is held to be obvious (MPEP 2144.07).

This is a provisional obviousness-type double patenting rejection.

8. Claims 6 and 14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3-17 of copending Application No. 10/313,088 in view of Uhlenbrock et al (US 6,319,832).

10/313,088 teaches all of the limitations of claim 6, as discussed previously, except the metal organic compound.

In a method of chemical vapor deposition, Uhlenbrock et al teaches a metal comprising precursor of $(\text{cyclopentadienyl})\text{Rh}(\text{Co})_2$ (col 4, ln 15-67 and claims 1, 6, 7, and 15). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify 10/313,088 with Uhlenbrock et al's rhodium metal organic precursor because selection of a

known material based on its suitability for its intended purpose is held to be obvious (MPEP 2144.07).

This is a provisional obviousness-type double patenting rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakabayashi et al (US 5,874,364) teaches deposition of a film using a metal organic precursor and a reducing gas followed by deposition of a second layer using a metal organic precursor and an oxidizing gas (col 23, ln 60 to col 24, ln 25).

Gates et al (US 6,203,613) teaches atomic layer deposition of a film using a metal organic precursor (col 5, ln 55 to col 6, ln 5) and using co-reactants of oxidizing agents and reducing agents (col 6, ln 45-55) separated by a purge step.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew J Song
Examiner
Art Unit 1765

MJS

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

